

WHAT IS CLAIMED IS:

1. A process for producing a lithographic printing plate which comprises: imagewise exposing with a high-power near-infrared or infrared laser a heat-sensitive lithographic printing plate precursor which comprises a metallic base having thereon, in this order, (1) an ink-receptive layer, (2) a hydrophilic layer containing colloidal particles of an oxide or hydroxide of at least one element selected from the group consisting of beryllium, magnesium, aluminum, silicon, titanium, boron, germanium, tin, zirconium, iron, vanadium, antimony, and the transition metals, and (3) a hydrophilic overcoat layer capable of being removed on a printing machine and which contains a compound capable of converting light into heat in at least one of the ink-receptive layer, the hydrophilic layer, and the hydrophilic overcoat layer; attaching the printing plate precursor to the plate cylinder of a printing machine without subjecting the plate precursor to any treatment; rotating the plate cylinder; subsequently supplying an ink and a dampening water to the plate surface by simultaneously bringing a dampening roll and an inking roll into contact with the plate surface or by bringing a water-metering roll into contact with an inking roll and then bringing the inking roll, which functions also to dampen, into contact with the plate surface; and thereby removing the overcoat layer and those parts of the hydrophilic layer which have been exposed.

2. A process for producing a lithographic printing plate on a printing machine which comprises: attaching the heat-sensitive lithographic printing plate precursor described in claim 1 to the plate cylinder of a printing machine equipped with the laser-exposing apparatus; imagewise exposing the printing plate precursor with a near-infrared or infrared laser from the laser-exposing apparatus mounted on the printing machine, while rotating the plate cylinder; subsequently supplying an ink and a dampening water to the plate surface after completion of the imagewise exposure, without stopping the rotation of the plate cylinder, by simultaneously bringing a dampening roll and an inking roll into contact with the plate surface or by bringing a water-metering roll into contact with an inking roll and then bringing the inking roll, which functions also to dampen, into contact with the plate surface; and thereby removing the overcoat layer and those parts of the hydrophilic layer which have been exposed.

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